

REMARKS

Claim 1 has been amended to ensure a precise recitation of the method of the invention by reciting that the depositing of a thin film composed of active material on a current collector is by CVD, sputtering, vacuum evaporation, thermal spraying or a plating method. This amendment is supported in the specification on page 7, lines 1-5.

In the Action of August 29, 2003, the Office objected to the specification as failing to provide proper antecedent basis for the claimed subject matter. The position of the Office is that the specification does not provide basis for the recitation in claim 1, lines 9-10, of depositing a thin film to form said electrode and for the recitation in claim 8 that the thin film is composed of silicon.

The Office rejected claims 1-9 under 35 U.S.C. §112, first paragraph, as failing to describe depositing a thin film to form the electrode. The Office cites page 11, line 5 (the correction citation is believed to be page 10, line 22, to page 11, line 5), as teaching the formation of an electrode using LiCoO₂ powder, acetylene black and PTFE.

The Office also rejected claims 1-9 under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner's position is that it is not clear how the removing and depositing steps form the electrode.

The above-noted objection and rejections are not understood. The specification clearly describes the depositing of a thin film of silicon on a collector to form an electrode. Specifically, the use of a silicon thin film to form an electrode is described in the paragraph bridging pages 5 and 6; on page 7, lines 9-22; and in Examples 1 and 2. The background of the invention also describes the use of silicon as an electrode on page 2, lines 1-14, and in the paragraph bridging pages 2 and 3. The present invention is an improvement in the method for manufacturing the thin film electrode of the prior art. Examples 1 and 2 describe the etching of a copper foil and the depositing of a thin film of silicon on the etched foil to form the negative electrode for a lithium secondary battery. The electrode formed using a mixture of LiCoO_2 powder, acetylene black and PTFE identified by the Office on page 2 of the Action is a positive electrode.

The objections and rejections in the Action were discussed briefly during a telephone conversation between the Examiner, Ms. Alanko, and the undersigned on October 24, 2003. During the telephone conversation, Ms. Alanko advised that she had reviewed the claims and the Action. Ms. Alanko indicated that based on her review the claims did not appear to require any amendments. However, Ms. Alanko also advised the undersigned that she had extended her search and had found a reference, U.S. Patent No. 6,059,847, that she believed to be relevant to the patentability of the claims of the present application (with the exception of claim 8). Ms. Alanko identified Col. 12, line 34, which describes an argon sputtering technique for removing an oxide layer, as being relevant.

U.S. Patent No. 6,059,847 is not believed to be relevant to the patentability of the claims of the present application as amended in the response filed June 30, 2003. The invention of the patent relates to a double layer capacitor in which an aluminum/carbon composite electrode is bonded to an aluminum foil that has been subjected to argon ion sputtering. In the method of the present invention, a thin film is deposited on the surface of

a current collector that has been subjected to etching. The step of "depositing" a thin film on the etched surface of a current collector recited in the claims of the present application distinguishes over the step of bonding an aluminum/carbon composite electrode to the surface of an aluminum foil that has been subjected to argon ion sputtering in the patent. The "depositing" step of the present application cannot reasonably be interpreted as reading on the "bonding" step disclosed in the patent. Moreover, the aluminum/carbon composite electrode bonded to the current collector in the patent is not a thin film of active material as required in the claims of the application.

Notwithstanding these distinctions, claim 1 has been amended as described above to precisely recite that depositing a thin film on an etched surface as recited in the claims of the present application means CVD, sputtering, vacuum evaporation, thermal spraying or plating.

Removal of the objection and rejections in the Action of August 29, 2003, is believed to be in order and is respectfully requested.

The foregoing is believed to be a complete and proper response to the Office Action dated August 29, 2003, and is believed to place this application in condition for allowance. If, however, minor issues remain that can be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number indicated below.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 111833.

In the event any additional fees are required, please also charge our Deposit Account No. 111833.

Respectfully submitted,

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